



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,023	02/15/2001	Yoshiaki Fukuzumi	01701.00059	6061

7590 09/06/2002

Banner & Witcoff, Ltd.
11th Floor, 1001 G Street, N.W.
Washington, DC 20001-4597

EXAMINER

FOURSON III, GEORGE R

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 09/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,023

Applicant(s)

FUKUZUMI ET AL

Examiner

George Fourson

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: _____

Applicant's election without traverse of the invention of claims 1-11 in Paper No. 5 is acknowledged.

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

See instant page 1, first paragraph, the incorporation by reference of the parent application.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "formed selectively" in claim 1 is used by the claim to mean "formation in areas followed by patterning to leave a remaining portion in a selected area," while the accepted meaning is "forming in the selected area without forming in other areas."

In claim 2, line 6, - - top - - should precede "surface" to ensure antecedent basis for the term.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chen, Bracchitta et al and Wolf, Vol.2.

Chen discloses formation of an antifuse by deposition of a conductive material 29 having a flat surface and filling the concave portion over gate dielectric 26 at least in the bottom of concave portions 10 and 12 in semiconductor substrate 24. The reference does not disclose formation of gates on the surface of the semiconductor substrate (fig.3).

Bracchitta et al discloses formation of gates flush with the conductor of an antifuse formed in a concave portion of a semiconductor substrate and electrical contact to the antifuse conductor (fig.4).

Wolf, Vol.2, discloses formation of a MOSFET including formation of an interlayer dielectric and contact vias to the gate and source/drain regions of the MOSFET. The reference discloses the formation of gate material by deposition of polycrystalline silicon and doping of the polycrystalline silicon (pp. 332-336).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Chen and Bracchitta et al to enable formation of transistors as part of the circuit of Chen and a patterned antifuse conductor layer as depicted by layer 40 of Bracchitta et al. MOSFET's such as those disclosed by Bracchita et al are self-isolating in that the P-N junction between the source/drain regions and the substrate

Art Unit: 2823

is a barrier to conduction. Therefore the formation of the antifuse contact according to the teachings of Bracchitta as part of the process of Chen would entail formation of the contact over an isolation region as recited.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Chen and Bracchitta et al with those of Wolf, Vol.2 to enable the necessary contacts to be formed. It would have been a matter of choice to form the electrical connection to the antifuse conductor over the isolation region because the entire antifuse conductor is conductive and such a step would enable forming the disclosed electrical connection to the antifuse conductor. The choice of doping concentration of the polycrystalline silicon film forming the gates and antifuse conductor would have been a matter of routine optimization to achieve a desired threshold voltage for the MOSFET formed and a desired conductivity of the antifuse and gate conductors.

The examiner takes official notice that formation of devices on SOI wafers was known prior to applicant's invention and was further known to mitigate radiation damage and latchup. It would have been within the scope of one of ordinary skill in the art to combine the known process with the teachings of the combination of Chen, Bracchitta et al and Wolf, Vol.2 to enable formation of isolated devices and further to mitigate radiation damage and latchup.

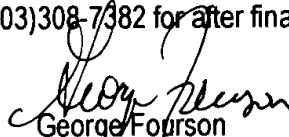
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. See MPEP 203.08.

Art Unit: 2823

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner George Fourson whose telephone number is (703) 308-2544. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918. The fax number for this group is (703)308-7722 (or extensions 7724, 3431 or 3432) for regular communications and (703)308-7382 for after final communications.


George Fourson
Primary Examiner
Art Unit 2823

GFourson
August 29, 2002